

15 Conclusions

Biophysical methods are extremely important for the further understanding of biological processes. Structurally highly resolving methods such as X-ray crystallography and scanning probe microscopy in combination with kinetic methods (see, e.g., Nölting, 2005) give us a true understanding of biological processes at a molecular and cellular level. Proteome maps of healthy and ill individuals are compared for identification of up- or down-regulation in disease states and for individual, highly efficient drug targeting. Biophysical nanotechnology and mass spectrometry open new fascinating ways of studying and influencing complex biological systems. Biophysical nanotechnology takes novel approaches to assemble protein nanoarrays, nanoparticles, and nanowires to well-functioning structures. Mass spectrometry and ion mobility spectrometry have significantly advanced towards the detection of ultra-traces not only of chemical, but also of biological agents.

The biophysical understanding of the living world is crucial to develop rational strategies to influence, in a responsible manner, pathological and non-pathological limitations, stress situations, and disease states. In this way, biophysics can contribute to the understanding of the factors that affect the prosperity and evolution of the human society.